

Notice of Allowability

Application No.

10/691,103

Examiner

Mary Kate B. Baran

Applicant(s)

REEVE ET AL.

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendments filed 2 March 2007.
2. ☒ The allowed claim(s) is/are 1-45.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted:
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Response to Amendment

1. This action is responsive to the Amendments filed 2 March 2007. Claims 1-45 are pending. Claims 1, 3, 6, 8, 9, 11, 14, 18, 19, 32-35 and 40-45 are amended.
2. The amendments filed 2 March 2007 are sufficient to overcome the prior 35 U.S.C. 112 second paragraph and 35 U.S.C. 101 rejections.

Allowable Subject Matter

3. Claims 1-45 are allowed.
4. The following is an examiner's statement of reasons for allowance:

Claims 1-13, 33-36 and 40-45 are allowable over the prior art because determining the presence of and/or a measurement for a plurality of constituents in a composite signal extending about a spectrum of interest obtained from a target sample undergoing analysis, comprising: rotating a design matrix to provide a rotated design matrix of principal components; selectively excluding data corresponding to certain principal components in the rotated design matrix; generating a reduced design matrix based on the steps of rotating and excluding; and computing regression fit weighting coefficients based on data in the reduced design matrix and the composite matrix for the plurality of individual constituents is not found, taught or suggested in the prior art of record.

Claims 14-18, 21, 22 and 37 are allowable over the prior art because deconvolving the spectral contribution of a plurality of closely correlated constituents in a composite signal, the computer program product comprising: rotating the design matrix, generating a reduced design matrix; and determining the presence of and/or measurement of at least one constituent in the target sample based on data from at least one of: the regression fit weighting coefficients and the deconvolved spectral contribution of the at least one non-target variable is not found, taught or suggested in the prior art of record.

Claim 19 is allowable over the prior art because deconvolving the spectral contribution of a plurality of closely correlated constituents in a composite signal, comprising: rotating the design matrix; generating a reduced design matrix; computing a normal equations matrix from the design matrix; and interrogating the normal equations matrix by applying a predetermined classifier function to selectively include and reject data associated with certain principal components in the rotated design matrix from the reduced design matrix is not found, taught or suggested in the prior art of record.

Claims 20, 32 and 39 are allowable over the prior art because a computer program product for deconvolving the spectral contribution of a plurality of closely correlated constituents in a composite signal, the computer program product comprising: computer readable program code for rotating the design matrix; computer readable code that generates a reduced design matrix; computer readable program code that computer regression fit weighting coefficients based on the design matrix, the reduced matrix, and the composite matrix to thereby deconvolve the spectral

contribution of at least one non-target variable across the spectrum of interest in the composite signal; and computer readable code that iteratively repeats a sequential least squares regression model using the design matrix, the reduced design matrix, and the composite matrix until selected target constituents of interest have been assigned non-negative weighting factors such that a sequential least squares statistical evaluation produces a non-negative solution set therefore, is not found, taught or suggested in the prior art of record.

Claims 23-31 and 38 are allowable over the prior art because a method of deconvolving a complex signal to evaluate an in vitro biosample, comprising: rotating a design matrix; generating a reduced design matrix of principal component data by selectively excluding principal components that do not improve the estimation of the target constituents in the composite signal; deriving regression fit weighting coefficients for the selected target constituents in the composite signal; and generating a calculated composite lineshape for the sample, the calculated lineshape being calculated based on the derived weighting coefficients of respective constituent reference spectrums of constituents potentially present in the sample, is not found, taught or suggested in the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B. Baran whose telephone number is (571) 272-2211. The examiner can normally be reached on Monday - Friday from 9:00 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

7 March 2007


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 571